

REMARKS

Status of the Claims

Upon entry of the foregoing Amendment, claims 1-21 remain pending in the above captioned application. Claims 22-39 have been withdrawn from consideration by the Examiner as drawn to a non-elected invention. Claim 1 is the sole independent claim. Claims 1-21 have been amended to address the rejections under 35 U.S.C. § 112, second paragraph, set forth at pages 2-3 of the Office Action. The claims stand variously rejected under 35 U.S.C. §§ 101, 112 2<sup>nd</sup> ¶, and 103(a).

Objections to the Disclosure;

Rejections Under 35 U.S.C. §§ 112 and 101

Applicant submits that the foregoing amendments to the specification and claims overcome each of the objections to the disclosure, as well as the rejections under 35 U.S.C. § 112, second paragraph, and 35 U.S.C. § 101, set forth by the Examiner at pages 2-4.

Reference to the claim numbers has been removed from the specification at pages 7-9, and the original claim

language has been inserted. As this text was a part of the originally filed claims, no new matter has been added.

Claim 1 has been amended to set forth process steps in the manner suggested by the Examiner; claim 1 as amended does not recite a "use."

Problems of antecedent basis and other informalities have been addressed in all of the claims.

Claims 11-21 have been amended to make clear the ranges of the relative values of water pressure and air pressure.

In view of the foregoing amendments, Applicant respectfully requests that the objections to the disclosure, and the rejections under 35 U.S.C. § 112, second paragraph, and 35 U.S.C. § 101 be withdrawn.

Rejections Under 35 U.S.C. § 103(a)

The Examiner has rejected claims 1-21 under 35 U.S.C. § 103(a) as being unpatentable over JP 57-154836 (JP '836), U.S. Patent No. 3,140,050 (Elmore), or U.S. Patent No. 5,730,163 (Meyer). This rejection is respectfully traversed.

JP 57-154836 (JP '836) discloses a nozzle having a separate supply of water (14) and air (16). However, JP '836 fails to teach a coaxial upstream portion and downstream portion, where compressed air and water mix in the upstream portion, with the downstream portion comprising a fluid port. In fact, there are no details about the nozzle structure or the spray obtained from the nozzle in JP '836. The Examiner has not provided any motivation that would lead one of ordinary skill in the art to modify JP '836 to include a wider "mixing" portion where compressed air and water mix. Further, JP '836 does not teach using pressurized water, as set forth in present claim 6, and contains no disclosure about separately controlling water and air pressure, or the relationships obtained between them as claimed in the dependent claims herein.

JP '836 is directed to the cleaning of semiconductor wafers and therefore contains no disclosure relevant to the cleaning of flowers, fruit, and the like, or to the relative pressure of water and air to be provided to a nozzle for cleaning these types of articles that will provide

savings in terms of water usage, as set forth in the present specification at pages 1-2.

Claims 11 through 21 herein, as amended, recite specific ranges of pressures of air and water that are provided to a mixing chamber in order to provide a suitable spray for cleaning particular surfaces with advantages in terms of water savings and efficacy.

Neither Elmore nor Meyer, taken individually, or in combination with JP '836, or each other, provide the elements missing from JP '836.

The apparatus in Elmore has nozzles (elements 61 and 66), but mixing of pressurized water and air is not accomplished in these nozzles as claimed herein. Any mixing disclosed in Elmore is conducted in upstream tanks. Thus, in using the Elmore apparatus, there is no step of mixing in a nozzle that is provided having coaxial bores with an upstream wider portion and a downstream narrow portion comprising a fluid port.

As with JP '836, Elmore does not disclose the particular articles to be cleaned that are recited herein. Accordingly, it could not have been obvious to arrive at the

correct ratio of air pressure to water pressure to obtain cleaning of these items with the appropriate savings in water usage as disclosed herein.

Meyer discloses the atomization of a cleaning fluid in a jet of air upstream of a "blow nozzle" 14, as best shown in Fig. 2 and described at column 6, lines 54-67. Any step that might be characterized as mixing does not take place in an upstream coaxial chamber of the nozzle coaxial with a downstream portion comprising a fluid port.

As with JP '836 and Elmore, Meyer is directed to cleaning different types of articles than are recited herein. Accordingly, it would not have been obvious to make the modifications to Meyer that would have been necessary to include all of the elements claimed herein, because the problems faced in the two disparate fields of endeavor are not the same.


Applicant respectfully submits that the art of record, whether taken alone or together does not disclose or suggest the presently claimed invention.

Accordingly, Applicant respectfully submits that claims 1-21 are allowable over the cited art, and respectfully

requests withdrawal of all objections and rejections of record and prompt passage of the application to issue.

Applicant's undersigned attorney may be reached in our New York office by telephone at (212) 218-2100. All correspondence should continue to be directed to our address given below.

Respectfully submitted,

  
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